WEATHER OF THE ATLANTIC AND PACIFIC OCEANS

[By the Marine Division, W. F. McDONALD in charge]

NORTH ATLANTIC OCEAN

By W. F. McDONALD

The pressure situation.—The first half of October, 1931, over the North Atlantic Ocean and adjacent continental areas was characterized by a pressure distribution which was quite stable in its large outlines. An extensive but moderate HIGH dominated the Atlantic between the United States and Spain, but a series of LOWS maintained a pressure trough from Labrador to northern Scandinavia during the first two weeks of the month. In general the track of the centers of individual LOWS was similar to that followed by the disturbances of the latter part of September and including that period there was about five weeks of remarkably persistent pressure distribution.

In the middle of October, however, there was a decided change in the pressure situation beginning with the development of a minor tropical disturbance about the 13th over the Bahama group. Immediately thereafter, a LOW appeared suddenly in mid-Atlantic near the Azores, and an extensive trough formed simultaneously, extending from the Florida Straits northward to Hudson Strait. This developed into a deep LOW off the middle Atlantic coast in the next few days.

After the 16th, a succession of well-developed low-pressure areas crossed the Altantic between latitudes 30° and 50° N., with the result that the normal ocean high-pressure area was disrupted. During the last half of the month, HIGHS were more transitory, and the only stable high-pressure conditions prevailed over the far northern portion of the ocean and along the European coast.

The resultant barometric averages for the month as a whole (see Table 1) revealed again, as in the previous month, above-normal pressures in the northeastern Atlantic, but central in this case over the British Isles. There was a deficiency from the Azores to New England and also from the Azores southwestward over the Caribbean Sea, with a slight excess of pressure over the Gulf of Mexico.

Gales and disturbances.—Gales were reported on the Atlantic on 22 days in October, and winds of gale force at some time in the month from nearly every part of the ocean north of a line from Turks Island to Lisbon. A few days at the opening and at the close of the month were comparatively quiet. Two to three day intervals on the 12–13th, 15–17th, 21–22d, and 26–28th, comprised the most widespread storminess, the 12–13th being perhaps the most disturbed period. On the latter dates, gales were encountered (well off the American coast) from latitude 30° northeastward to mid-Atlantic in latitude 60°. Winds of hurricane force were experienced on the 13th by the German ship *New York*, enroute westward near latitude 45° N., longitude 43° W. This was the highest wind reported during the month.

Gales of force 11 were reported on several dates from the main trans-Atlantic steamer route, and whole gales with some frequency between the 9th and 22d. Shipping was but slightly hampered, however, and no major damage to marine commerce has been reported, although several small ships were in distress, and the 100-ton motor ship *Canusa* (British) was lost near the Bahamas about the 15th.

Two barometric depressions, apparently weak tropical disturbances in origin, appeared over the region of the Bahamas, the first between the 12th and 15th and the second about a week later. The first development produced no high winds so far as reports in hand indicate, but the second caused moderate to fresh gales on the 20th and 22d as it moved northeastward into the middle-western part of the Atlantic.

The latter storm development appears to have been the major factor in producing the predominant cyclonic conditions of the last decade of October. Its progress at successive stages is shown in four charts (VIII to XI) dated at 2-day intervals during the life of the disturbance, beginning with October 22.

Fog.—There was some increase as compared with fogs in September, but fogginess was not seriously prevalent at any period in October. As usual, the most frequent reports of this condition came from the areas around the Grand Banks, but even there the prevalence was less than 25 per cent. A few scattered fogs were encountered well southward in the western Atlantic, towards Bermuda, and similar conditions in the eastern Atlantic as far southward as the offing of the Straits of Gibraltar.

TABLE 1.—*Averages, departures, and extremes of atmospheric pressure (sea level) at selected stations for the North Atlantic Ocean and its shores, October, 1931*

Stations	Average pressure	Departure	Highest	Date	Lowest	Date
	Inches	*Inch*	*Inches*		*Inches*	
Julianehaab, Greenland [1]	29.87		30.55	17th	29.10	13th.
Reykjavik, Iceland [1]	29.65	−0.03	30.68	20th	28.71	2d.
Lerwick, Shetland Isles [1]	29.85	+0.06	30.52	18th	29.25	8th.
Valentia, Ireland [1]	30.12	+0.21	30.62	14th	29.59	23d.
Lisbon, Portugal [1]	30.09	+0.07	30.38	2d	29.50	24th.
Madeira [1]	30.03	+0.05	30.25	11th	29.82	22d.
Horta, Azores [1]	29.98	−0.13	30.39	7th	29.27	22d.
Belle Isle, Newfoundland [1]	29.94	+0.07	30.36	12th	29.28	2d.
Halifax, Nova Scotia [1]	29.96	−0.08	30.34	1st	29.38	26th
Nantucket [2]	30.00	−0.05	30.41	13th	29.34	16th.
Hatteras [2]	30.11	+0.05	30.47	1st	29.64	16th.
Bermuda [1]	30.07	0.00	30.26	14th	29.76	16th.
Turks Island [1]	30.00	−0.05	30.08	30th	29.88	4th.
Key West [2]	29.97	+0.03	30.14	1st	29.81	17th.
New Orleans [2]	30.06	+0.03	30.30	1st	29.79	28th.
Cape Gracias [1]	29.83	−0.09	29.94	1st	29.76	18th.

[1] All data based on a. m. observations only, with departure computed from best available normals related to time of observation.
[2] Corrected 24-hour means, based on more than one observation daily.